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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,088	03/23/2004	Geoffrey Burke Bauer	10543-069	3841

7590 12/21/2007
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EXAMINER

MANCHO, RONNIE M

ART UNIT	PAPER NUMBER
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3663

MAIL DATE	DELIVERY MODE
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12/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/807,088		BAUER ET AL.	
	Examiner		Art Unit	
	Ronnie Mancho		3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,7,9-13,16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) 12,13,16,17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,7 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The amended specification submitted 9/20/07 is acknowledged and entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5, 7, 9, 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tseng et al (2005/0149240) in view of LaPlante et al (6732033).

Regarding claim 1, Tseng et al (abstract; figs. 1-8) disclose a system for estimating body states of a vehicle comprising:

a first linear accelerometer and a second linear accelerometer mounted (32, 36; sec. 0031, 0043, figs. 1-4) to the vehicle in separate locations from each other, the first and second linear accelerometers each being configured to measure the acceleration (sec 0025 to 0028, 0046, 0047) of the vehicle in a given direction and generate measured vehicle state signals (lateral acceleration signal, longitudinal acceleration signal; sec 0025 to 0028, 0046, 0047; see page 6, claims 8-15) based on the acceleration of the vehicle;

a third linear accelerometer 35 mounted to the vehicle in a separate location from sensors 32 and 36 (figs. 1-4), the third linear accelerometer configured to measure the acceleration of the vehicle in a second direction (sec 0025 to 0028, 0046, 0047; figs. 1-4) and generate measured

vehicle state signals (vertical acceleration signal; sec 0025 to 0028, 0046, 0047; see page 6, claims 8-15) based on the acceleration of the vehicle in the second direction.

Tseng et al do not disclose two accelerometers measuring acceleration in a first direction and two other additional accelerometers measuring acceleration in a second direction. However, LaPlante et al teach of: a first linear accelerometer and a second linear accelerometer mounted to a vehicle at separate locations from each other, the first and second linear accelerometers being configured to measure the acceleration of the vehicle in a first direction and generate measured vehicle state signals (acceleration signals; col. 10, lines 21-44; col. 6, lines 27-45) based on the acceleration of the vehicle in the first direction; and a third linear accelerometer and a fourth linear accelerometer mounted to the vehicle at separate locations from each other, the third linear and fourth linear accelerometers being configured to measure the acceleration of the vehicle in a second direction and generate measured vehicle state signals (acceleration signals; col. 10, lines 21-44; col. 6, lines 27-45) based on the acceleration of the vehicle in the second direction.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tseng as taught by LaPlante et al for the purpose of accurately measuring acceleration of vehicle in a given direction in case one of the accelerometers in the first or second direction gets bad, or as a back up when one accelerometer in a direction fails.

The combination of Tseng and LaPlante et al further disclose:

a signal adjuster (66, 68, fig. 4; see Tseng) configured to transform the measured vehicle state signals from a sensor coordinate system to a body coordinate system associated with the vehicle (see Tseng, sec. 0025-0030, 0046 to 0050); and

a filter (74, fig. 4; sec 0044, 0049; see Tseng) configured to receive the transformed measured signals from the signal adjuster (66, 68, fig. 4) and processes the measured signals into body state estimates (roll angle, pitch angle, etc; sec. 0044 to 0049; see Tseng figs 4, 6-8) of the vehicle, the body state estimates include at least one of a roll rate, a roll angle and a yaw rate (see Tseng, sec. 0044 to 0049).

Regarding claim 2, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 1 wherein the filter includes a model of the vehicle dynamics (sec. 0046, 0048) and a model of the linear accelerometer; the state estimates (roll angle, pitch angle, etc; sec. 0044 to 0049; see Tseng figs 4, 6-8) being based on the transformed measured signals and the models of the vehicle dynamics and linear accelerometers (sec 0046, 0048).

Regarding claim 3, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 1 wherein the filter includes an estimator (see Kalman filter, sec. 0049; figs. 6-8 of Tseng), an algorithm being implemented in the estimator to process the transformed measured signals and the models of the vehicle dynamics and linear accelerometers and generate the state estimates (roll angle, pitch angle, etc; sec. 0044 to 0049; see Tseng figs 4, 6-8).

Regarding claim 5, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 1 further comprising an angular rate sensor.

Regarding claim 7, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 1, but did not disclose two accelerometers that measure accelerations in a third direction. However, one of ordinary skill in the art after combining Tseng and LaPlante will be able to add more accelerometers in a third direction for measuring

accelerations in the third direction. Therefore, it would have been obvious to one of ordinary skill in the art to modify Tseng/LaPlante as taught by LaPlante since it has been held that known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are practicable to one of ordinary skill in the art.

Regarding claim 9, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 1, wherein Tseng et al disclose only one accelerometer that measures acceleration in a vertical direction, but did not disclose two accelerometers that measure vertical accelerations of the vehicle. However, one of ordinary skill in the art after combining Tseng and LaPlante will be able to add more accelerometers in a vertical direction for measuring accelerations in the vertical direction. Therefore, it would have been obvious to one of ordinary skill in the art to modify Tseng/LaPlante as taught by LaPlante since it has been held that known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are practicable to one of ordinary skill in the art.

Regarding claim 10, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 1 wherein the state estimates relate to the vehicle's lateral velocity, yaw rate, roll angle, and roll rate.

Regarding claim 11, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 1 wherein the signal adjuster further provides compensation for gravity biases associated with the linear accelerometers (see gravity <g>, Tseng sec. 0046).

Response to Arguments

4. Applicant's arguments filed 9/20/07 have been fully considered but they are all not persuasive.

The 112 rejections have been withdrawn in view of applicant disclosure in the specification (sec. 0020-0022).

Applicant's arguments drawn to the 103 rejections are moot in view of the newly implemented prior art, LaPlante. Tseng in view of LaPlante anticipate two accelerometers measuring acceleration in a first direction, two other acceleration sensors measuring accelerations in a second direction, etc. Tseng in view of Laplante disclose separate locations for mounting acceleration sensors such as on the un-sprung mass and on the sprung mass of the vehicle. Although Tseng disclose that the sensors may be put at the center of gravity, it is a matter of preference of the designer as taught by Tseng. Tseng further suggests that the sensors may be put along the body frame directions b1, b2 and b3. Further even if the sensors are put at the center of gravity, they cannot possible all be at the same position, because one sensor will have to be put upon the other or a little minute distance from each other.

In view of applicant's amendments including language such as, "configured to" in the claims, the rejection directed to MPEP 2114 has been withdrawn.

It is therefore believed that the rejections are proper and thus stand.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronnie Mancho whose telephone number is 571-272-6984. The examiner can normally be reached on Mon-Thurs: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

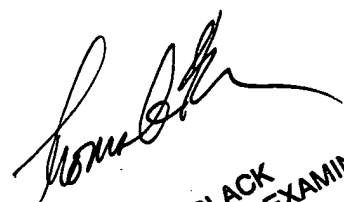
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Ronnie Mancho
Examiner
Art Unit 3663

12/14/2007



THOMAS BLACK
SUPERVISORY PATENT EXAMINER